

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings and versions of claim in this application.

1. (Currently amended) A method of making a semiconductor structure having a surface layer of a first material, a sub-surface layer of a second, different material, and a supporting substrate, which method comprises:

selectively implanting atoms through the surface layer and at least a portion of the sub-surface layer to render the first and second materials receptive to removal by etching; and

selectively etching at least that portion of the sub-surface layer through which atoms have been implanted in order to form a cavity beneath the surface layer.

2. (Currently amended) The method according to claim 1, which further comprises providing the second material to be one that is more susceptible to etching than the first material so that it ~~can be removed~~ is more easily removed than the first material.

3. (Original) The method according to claim 1, wherein the first material is a semiconductor material and the second material has properties sufficient to electrically insulate the first material so that the sub-surface layer is an insulating layer.

4. (Original) The method according to claim 3, in which the first material of the surface layer is silicon and the atoms to be implanted are ions of hydrogen or ions of helium.

5. (Currently amended) The method according to claim 1, wherein the atoms are implanted through ~~the~~ an entire thickness of the sub-surface layer.

6. (Currently amended) ~~The method according to claim 1, A method of making a semiconductor structure having a surface layer of a first material, a sub-surface layer of a second, different material, and a supporting substrate, which method comprises:~~

selectively implanting atoms through the surface layer and at least a portion of the sub-surface layer to render the first and second materials receptive to removal by etching, wherein the selective implantation of atoms is obtained by masking a portion

of the surface layer and implanting atoms in a zone that has a shape that corresponds with the a non-masked portion of the surface layer; and

selectively etching the portion of the sub-surface layer through which atoms have been implanted in order to form a cavity beneath the sub-surface layer.

7. (Original) The method according to claim 6, wherein the masking is applied to define an implantation zone of a predetermined shape.

8. (Original) The method according to claim 7, wherein the predetermined shape of the implantation zone is concave or convex.

9. (Original) The method according to claim 7, wherein the predetermined shape of the implantation zone is polygonal.

10. (Currently amended) ~~The method according to claim 1, which further comprises A method of making a semiconductor structure having a surface layer of a first material, a sub-surface layer of a second, different material, and a supporting substrate, which method comprises:~~

selectively implanting atoms through the surface layer and at least a portion of the sub-surface layer to render the first and second materials receptive to removal by etching;

forming at least one hole in the surface layer to a depth that leads to the sub-surface layer; and

selectively etching the portion of the sub-surface layer through which atoms have been implanted in order to form a cavity beneath the surface layer.

11. (Currently amended) The method according to claim 10, wherein the hole leads to a boundary of the implantation zone and an adjacent zone through which atoms have not been implanted so that ~~the implanted one as well as a portion of the non-implanted zone can be removed.~~

12. (Original) The method according to claim 1, wherein the etching is performed with an acid.

13. (Original) The method according to claim 1, wherein the etching is performed wet or dry.

14. (Original) The method according to claim 10, wherein the second material is silicon dioxide (SiO₂); silicon nitride (Si₃N₄); diamond; sapphire; hafnium oxide (HfO₂); zirconium oxide (ZrO₂); alumina (Al₂O₃); lanthanum oxide (La₂O₃); or ytterbium oxide (Y₂O₃).

15-26. (Canceled)

27. (New) The method of claim 1 wherein the implanted portion of the subsurface layer is etched with a wet or dry etchant.

28. (New) The method of claim 27 which further comprises processing the surface layer to provide access for the etchant to the implanted portion of the subsurface layer.

29. (New) The method of claim 28 wherein access is provided by at least one hole extending through the surface layer to the subsurface layer.

30. (New) The method of claim 1 which further comprises defining an implantation zone of a pre-determined concave, convex, or polygonal shape.

31. (New) The method according to claim 1, wherein the second material is silicon dioxide (SiO₂); silicon nitride (Si₃N₄); diamond; sapphire; hafnium oxide (HfO₂); zirconium oxide (ZrO₂); alumina (Al₂O₃); lanthanum oxide (La₂O₃); or ytterbium oxide (Y₂O₃).

32. (New) The method according to claim 6, wherein the second material is silicon dioxide (SiO₂); silicon nitride (Si₃N₄); diamond; sapphire; hafnium oxide (HfO₂); zirconium oxide (ZrO₂); alumina (Al₂O₃); lanthanum oxide (La₂O₃); or ytterbium oxide (Y₂O₃).

33. (New) The method of claim 6 wherein the implanted portion of the subsurface layer is etched with a wet or dry etchant.

34. (New) The method of claim 33 which further comprises processing the surface layer to provide access for the etchant to the implanted portion of the subsurface layer.

35. (New) The method of claim 34 wherein access is provided by at least one hole extending through the surface layer to the subsurface layer.

36. (New) The method of claim 6 wherein the first material is a semiconductor material and the second material has properties sufficient to electrically insulate the first material so that the sub-surface layer is an insulating layer, and wherein the atoms are implanted through an entire thickness of the sub-surface layer.

37. (New) The method of claim 10 which further comprises defining an implantation zone of a pre-determined concave, convex, or polygonal shape.

38. (New) The method of claim 10 wherein the implanted portion of the subsurface layer is etched with a wet or dry etchant.